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ABSTRACT

A 1986 policy instituted by the Board of Governors of the California Community Colleges calls for strengthening the rigor and academic standards of all college-level courses to be counted toward the associate degree. The policy calls for all courses to promote students' ability to think critically. One of the first difficulties encountered by curriculum committees as they worked at implementing the new Title V regulations was the establishment of a definition of critical thinking that is broad enough to encompass college-level courses throughout the academic and vocational/technical curriculum, as well as a definition that could apply to both content- and skill-based courses. Chancellor's Office staff member Nancy Glock defined critical thinking skills as "diverse cognitive processes and associated attitudes critical to intelligent action in diverse situations and fields that can be improved by instruction and conscious effort." Critical thinking cannot be reduced to one skill or one set of skills, but it can be defined in terms of intelligent actions that enable students to comprehend, communicate, or engage in problem-solving or strategy-building techniques. This paper illustrates how critical thinking skills can be used in the following skill-based areas of the curriculum: (1) performance classes in art and music; (2) foreign languages; (3) physical education and athletics; and (4) vocational education. (NB)

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The Academic Senate
for
California Community Colleges

Critical Thinking Skills in the College Curriculum

April 1988

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Educational Policies Committee

1987-88

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April, 1988

Critical Thinking In The College Curriculum

Background

In 1986, the Board of Governors of the California Community Colleges instituted a policy calling for strengthening the rigor and academic standards of all college-level courses to be counted toward the associate degree. These new Title 5 regulations are in the process of being implemented in the community colleges through the cooperation of academic senates, curriculum committees, and instructional offices. One of the policy's new requirements calls for all courses to promote the student's "ability to think critically" and "to understand and apply concepts at a level determined by the curriculum committee to be college level.@

One of the first difficulties encountered by curriculum committees throughout the state was the establishment of a definition of critical thinking broad enough to encompass college level courses throughout the academic and vocational/technical curriculum, as well as a definition that could apply to both content-based and skill-based courses. The Educational Policies Committee of the Academic Senate has prepared the following paper in order to provide a broad definition of critical thinking skills and to assist faculty in identifying some of the intellectual actions that constitute critical thinking in their courses.

A Definition of Critical Thinking

In a recent paper prepared by Chancellor=s Office staff member Nancy Glock, the following definition of critical thinking skills has been proposed to assist faculty within all disciplines to meet the new requirement. The critical thinking skills proposed here (see appendix) should allow faculty to assign work that challenges the critical thinking abilities of their students without creating a new or artificial component of their courses. Instruction and conscious application and practice of these critical thinking skills should enable students to develop and apply these skills to other areas of the college curriculum.

Critical thinking skills are those diverse cognitive processes and associated attitudes critical to intelligent action in diverse situations and fields that can be improved by instruction and conscious effort.
(Glock, 1987: 9).

Glock further refines the application of critical thinking by noting that actions involving physical skills that not only are habitual but embody instantaneous decision making, such as some instances of athletics or crafts, do call upon critical thinking. The test is whether actions can later be analyzed and assessed for strategic or aesthetic effectiveness and improved thereby.

If they meet this test, then the actions in question have the *potential* for instruction in critical thinking. That potential is realized when students are required to make explicit their reasoning, and are taught how to generate further options and to assess their strategies and outcomes against the standards of the field. Thus, critical thinking is itself an open-ended and continually evolving process that should be fundamental to most disciplines, and also useful in adapting to different situations. At the broadest level, critical thinking skills are transferable from one discipline to another, but the effective application of these generic skills also requires domain-specific knowledge. Although the transfer is not necessarily automatic, a student with well-developed skills in critical thinking in one area should be able to apply these skills to other areas, and "substantially decrease the amount of time necessary to become proficient in a new field of endeavors (Glock, 1987: 10).

While critical thinking cannot be reduced to **one** skill or **one set** of skills, it can be defined in terms of intelligent actions that enable students to comprehend, communicate, or engage in problem-solving or strategy-building techniques. Questions that ask respondents to list or to describe what has already been listed or described in class or instructions that require execution of a fixed series of motions or rote drills are not "intelligent actions" in the required sense. Thus, a college course should require students not only to exercise judgment by describing alternate solutions, but also to make decisions, and to be able to justify those decisions. The development of critical thinking will allow students to move beyond the passive learning of evaluative standards to the creation of their own standards of criticism. The incorporation of critical thinking skills as a primary objective of college-level courses will have a great impact on the college curriculum and its responsibility in assisting students to develop the skills necessary to arrive at better answers. The role of community college faculty in improving by instruction and conscious effortsA their students' critical thinking skills in the context of their discipline, should enhance the students' ability to do well in other areas and thus create a learning environment of Critical thinking across the curriculum.

To define critical thinking skills is to restate many of the traditional goals of higher education; that is, to provide a program of instruction that enables students to become independent learners, to be capable of exercising informed and balanced judgment, and to contribute as mature citizens in their society.

Critical Thinking in Some Skill-Based Areas of the Curriculum

Following are illustrations of how critical thinking skills can be integrated into specific fields of study, to benefit both students and the curriculum.

Performance Classes in Art and Music

It is a well established principle that even beginning art students can be taught to critique their own work and that of others. As they articulate the successful and

unsuccessful aspects of a work, they are performing just those evaluative tasks that mark independent, rather than passive, reaming. They are developing the ability to make thoughtful, informed, and careful judgments and, thereby, to develop confidence in the value and strength of their own judgments. Thus, the task here is only to enhance student awareness of these activities and the connection between them and the rest of their education, indeed the rest of their lives. Choosing a career or making other decisions involves an interplay between self-expression and the constraints of reality different from, but parallel to, the artist's work in creating from the medium something beautiful, meaningful, or aesthetically satisfying.

Critical thinking is inherent in musical performance, and even the beginning student becomes aware of the constant split-second decisions which must be made in transforming the composer's Blueprints of musical symbols into sound. The task of the instructor is to stress the expressive elements of music making such as touch, tone quality and phrasing, from the outset, while simultaneously teaching the basic skills of music-reading and instrumental technique. Students should be shown the criteria by which their performances are evaluated by the instructor and learn to use these criteria to analyze the performances of fellow students. If they discuss one another's interpretive decisions, they learn about the objective and subjective bases of these evaluations. As they make and justify their judgments, they are becoming more skillful at introspection, more knowledgeable about music, and more autonomous in their own judgment. The knowledge gained from this analysis can then be applied to their own performances. As the student progresses, the elements included in this analysis will begin to include interpretive decisions and stylistic awareness as well as technical accuracy and basic musicianship. Since the knowledge gained through lecture, demonstration, and performance analysis in the classroom must be applied by the student during practice outside of class, the concept of independent learning is very much supported here.

Students who learn self-expression as a means of reaching deeply into themselves and who can, at the same time, stand back and evaluate the success of their self-expression and its meaning and value for others, are learning lessons of value outside their artistic endeavors while improving their creative abilities as artists and musicians.

Foreign Languages

One of the inherent values in the study of a foreign language is that students will learn to understand and respect cultural traditions and values other than their own. From the elementary to the advanced level, the foreign language instructor should foster qualities of open-mindedness, intellectual curiosity, objectivity, adaptability and a comparative perspective enabling people of diverse cultural and ideological backgrounds to understand each other better. As the population of California becomes increasingly diverse culturally and ethnically, the adaptability of these skills to other areas of the curriculum as well as to situations outside the classroom

becomes indispensable. Foreign language instruction in this area should focus on the student's ability to use the language in culturally appropriate ways, to interpret what is culturally relevant in a social situation or a text, and to be able to interact in a range of social situations, including unexpected ones. Functional acquisition of these skills should enable students to recognize cultural characteristics beyond mere stereotypes. From the elementary to the advanced level, foreign language instruction should also encourage students to understand historic processes of cultural interaction through the linguistic influence of one language on another.

Foreign language instruction today focuses on the student's developed proficiency in terms of cultural awareness, comprehension, and productive skills. One of the major purposes in the study of a foreign language is learning to communicate. To develop this ability, students need to use various receptive skills, such as listening, watching, reading, and deducing from context. However, comprehension, whether it be aural or written, precedes the acquisition of productive skills because the student's mind is busy internalizing and integrating the multiplicity of stimuli being received. The foreign language instructor should encourage the synthesizing of all these incentives into oral production. The most creative aspect of a student's acquisition of the language is the ability to improvise orally or in writing in response to different situations. In mastering these skills, the student should make progress from a primarily reactive mode, to a creative one in which learned elements are combined and recombined, to an initiative mode in which the student initiates and sustains communication.

The integration of the critical thinking skills developed in the acquisition of a foreign language ail-purpose strategies for figuring things out from context, catching inferences, managing a conversation, learning and sensing what is appropriate in another culture, internalization of grammatical concepts into accuracy of production should enable the foreign language student to perform better in other areas of the college curriculum as well as to make informed and responsible decisions as a citizen of a culturally dynamic society.

Physical Education and Athletics

Student involvement in physical education or athletic activities can be regarded as a progressive process of physical and cognitive learning. At the early stages of athletic skill development, the cognitive involvement of the learner is predominantly a process of imitation and of repetitious practice of the imitated technique. However, much like the learning of a foreign language or the refinement of a musical skill, the learning of an athletic skill entails early use of critical thinking skills. Even in early stages of athletic activity, while the student is still receiving general instructions from the instructor or coach, it remains for the athlete to interpret them and to decide how to implement the completed physical action. In fact, in every athletic endeavor there are innumerable ways in which a specific act can be successfully enacted. Students create their own styles for throwing balls, or running, or leaping, and this creative

activity can enhance the particular athletic skill.

At a more advanced level of athletic performance, students can be taught increasingly subtle and creative modes of activity, and they can be taught how to evaluate the effectiveness of their own performances, as well as that of their teammates and their competitors. Like the artist and the musician, the athlete learns to think critically by becoming conscious of alternative styles, by developing and refining a style, and evaluating the advantages and disadvantages of these differences. An understanding of the elements of effective athletic actions can be used by student athletes to improve their performances, both of themselves as well as others. Eventually, students can learn to interpret the dynamics of effective motion and movement, as well as to appreciate the creative tactical and strategic elements of successful athletic performances. Students would discover that the rules of athletic competition exist to make the activities safe, fun and fair, and they may develop ideas of how the rules could be changed to enhance an activity. The acquisition of critical thinking skills allows students to develop the abilities to train or coach themselves; that is, to analyze their own efforts, and to devise methods for improving upon their performances.

As a result of applying these domain-specific critical thinking skills to athletic endeavors, students can also develop the generic skills of analysis and evaluation that can be transferred to other areas of interest and inquiry in the curriculum. In this sense, critical thinking skills are as relevant to the enhancement of physical activities as they are to more traditional applications n academic areas.

Vocational Education

Vocational education programs provide a unique opportunity for students to acquire employable skills as well as critical thinking skills which will allow them to adapt to emerging technological changes. In the modern industrial and post-industrial society, technological obsolescence occurs at an increasingly rapid pace.

Thus, vocational education programs cannot teach students only a specific set of skills, but must also prepare them to progress beyond the entry level job, to adapt to changing technologies and to make informed career decisions.

Students in vocational education must learn to see their occupation in historical perspective, to understand its origins and its future. They must develop the ability to understand the broader implications of their occupation in the social structure, to interpret changes around them in terms of the consequences for their own careers, and to anticipate the need for changes In technique and technology. They must have the ability to analyze developing circumstances and understand the alternatives they face before making decisions.

Critical thinking skills will also allow an individual to construct a working environment

that is amenable to both practitioners and clients. A critical awareness of the position and importance of the occupation in the economy will result in a concern for worker satisfaction, a pride in craftsmanship, an elimination of job alienation, and a concern for customer satisfaction. The vocational education student who has acquired critical thinking skills will be equipped to take a broader view of the economic and social relationships that are a part of the workplace, and to understand the short-term and long-term effects of various actions.

It is essential that vocational education students have the skills for adaptation and survival in a rapidly changing world. Critical thinking skills will enhance the adaptive abilities, and these skills will be of lasting importance over the course of a lifetime.

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Our native tongue appears to us at the beginning as a purely transparent window on the real world. Ony later on, in encountering other tongues and other usages do we come to a more reflective self-consciousness about our own symbolic representations. Extended further, such self-consciousness turns sytematically critical, forcing a theoretical wedge between ourselves and our own representations.... we thus acquire a reflective distance....

(p. 20, Of Human Potential, by Israel Scheffler)

If it is to be authentic, the requirement for "critical thinking" in a course cannot only affect the objectives of the course, its content, texts, assignments, and evaluation modes. It must also, most importantly, affect the style and methods of instruction and the atmosphere of the class. Care in reasoning matters little if the products of reasoning are not taken seriously in the class; if problems are set only as exercises. And if care is taught only in connection with exercises and never in connection with real beliefs, deeply felt, then the likelihood of the transfer of critical thinking skills to any context where they really matter is greatly reduced. On the other hand, if the critical thinking going on in a classroom is to be authentic, then it means that the statements of the teacher and of the text, and the assumptions and values inherent in the discipline or field under study must all be open to scrutiny, should question arise. It may also mean that the teacher should explicitly and consciously raise such fundamental questions and be prepared to seriously entertain any resulting challenges.

Nor must this questioning in its turn be permitted to become but an empty exercise. The object is not the production of knee jerk scepticism. Questioning is only part of critical thinking. Understanding and being able to assess evidence, knowing when to act on partial evidence, and recognizing where values or fundamental principles must simply be accepted as starting points are also crucial aspects of the full exercise of critical thinking. In the end, the educational objective is for students to arrive at better answers--not to refuse answers at all. It is for them to take more responsibility for the answers they accept--not to avoid tatting stands at all.

Desire here blossoms into committment, perseverance, loyalty--a kind of love of the project embarked on, w ith which one identifies oneself and which helps shape one's self-respect. Beyond realistic hope, not always available, lies faith; and love of the goal may inspire the courage to conquer even realistic fears. It is not only in the realm of moral principle, thus, that fear and love, courage and respect, have a role to play, but throughout the sphere of action their relevance is evident. Hedged about by constraints on available options. by limitations of capability, and by the uncertainty of even the best-available foresigl1t, human choice proceeds nevertheless to stake out paths in the jungle of possibilities, building habitations of varied structure and adornment to house its loves and works.

(p. 33, Of Human Potential, Israel Scheffler)

Chart: Critical Thinking Skills

On the next page is a chart showing the five main components of intelligent action and attempting to distinguish which aspects of each of these components is generic and transferable, hence a "critical thinking skill", which are are attitudes, and which are domain-specific (i.e. skills or knowledge or attitudes specific to a given domain or field of human endeavor and hence dependent upon specific experience with that field). **It may be useful in defining objectives for a course or in designing situations that test these abilities**

On the two pages following is a double-chart organizing intelligent actions in the order of difficulty. Moving from top to bottom, it becomes more difficult to explain to students what is required and more threatening to students to carry them out. For the most part, those actions called for toward the bottom of the page presuppose the ability to do those occurring earlier on the page.

The two sides of the double-chart attempt to show the roughly parallel development in hands-on and/or technical tasks, on the one hand, and the more academic, verbal tasks on the other. **These charts may be useful in identifying and sequencing content-based tasks that call for critical thinking** Skills **at increasing levels of difficulty.** While transfer horizontally across these two classes of activities, on the double chart, even at the same level, rarely occurs spontaneously, there is some evidence that explicit efforts to bring about such transfers can reap marked benefits to students.

One such effort to encourage transfer of critical thinking skills across the split between "verbal" and "visual"(follow the char) is an effort to use the visualizing, graphing techniques typical of "problem-solving" to carry out the essentially verbal task of writing an answer to an **essay** examination

*8 **1987 Excerpted from an article under preparation for publication where arguments and references are offered for the points summarized here. Permission is granted for reproduction of this excerpt for non-profit use by California Community College personnel implementing the new regulations on academic standards.**

Some Thinking Skills Critical To Comprehension, Communication, & Problem-Solving

Components of Intelligent Acts	**Generic Thinking Skills**	**Attitudes Critical to Thinking**	**Domain-Specific Thinking Skills**
1. **Problem-Posing** Perceiving and defining a problem (or potential); Asking a fruitful question Defining an effective theme	*Understanding what a problem or a theme is, in general, and having some schemata or search strategies for anticipating or discerning problems or developing a theme *Ability to sift through multiple variables and Aput one=s finger on the real problem@ or the Areal point@ *Ability to shift perspective, to redefine problem or theme from different perspectives *Ability to articulate a problem or theme in different terms	*Initiative *Habit of Ascanning@, of looking out for problems or significance *Both caution and confidence in setting aside other variables or themes to focus on the one more promising *Tolerance for Acognitive dissonance@ and uncertainty *Recognition that problems must often be redefined, or ideas reworked, before a solution or a structure can be found *Overriding desire to find the best solution or structure	*Knowledge of the types of problems or issues constitutive of this discipline or familiarity with the types of problems that typically show up in this field or situation. *Understanding of the vocabulary peculiar to this field and of the range of terminology that can be used to define problems or state ideas that will be comprehensible to others in the field *Experience with successfully reformulating problems/ideas in the past; familiarity with the different viewpoints in the field
2. **Inquiry** Determining what information is necessary and obtaining it	*Understanding when its necessary to ask each of the following questions *Ability to evaluate the distinct kinds of evidence for each: a. What do you mean? b. How do you know? c. So What?	*Disposition to seek answers before acting and to check the validity of crucial information where it may be suspect *Willingness to take responsibility for the truth of one=s claims *Honesty	*Understanding of the modes of inquiry constitutive of a discipline or of the techniques for finding out used in a field *Skill in following these modes or using these techniques
3. **Standards** Understanding what is at stake in the situation, what are the objectives, or the standards of the endeavor	*Understanding standards of relevance, clarity, evidence, logical validity, coherence, proportion, economy, utility, fairness *Understanding of when and how these standards apply *Techniques for testing when these standards have been met	*Appreciation of what it means to meet standards *Willingness to subject one=s ideas or efforts to critical scrutiny	*Understanding of the standards constitutive of a discipline, or the objectives constitutive of a field *Experience applying these standards to actual situations; *Judgement regarding the relative importance of standards and when they may be safely set aside
4. **Creative Thinking** Generating alternatives	*Ability to Abreak a mind-set@ *Familiarity with strategies and schemata that could be varied to fit	*Tolerance for uncertainty *Playfulness *Courage	*Familiarity with all of the usual alternatives available in the field *Experience solving a wide array of

	new situations *Brainstorming & insight-generating techniques	*Patience and persistence *Understanding and respect for one=s own creative processes *Capacity to work with others	problems and generating additional alternatives when the usual ones wouldn=t work
5. Reasoning Accepting a conclusion; making a plausible decision for sound reasons Assessing one's own work correctly	*Intelligent acts require general cognitive skills, the disposition to use these skills, and knowledge peculiar to a given domain. ACritical Thinking@ can be viewed as covering all of these general cognitive skills or as limited to a special sub-set (the evaluative). The ability of someone to Athink critically@ is <u>not just the sum of these skills but how they are applied</u>* *Assessment of critical thinking skills must be based upon a careful analysis of how they were used, with the relevant Adomain-specific@ knowledge in such actual applications as grades in content-based courses or on-the-job effectiveness.*		

Tasks Calling for Critical Thinking Skills
Exposition

Primarily verbal skills essential to success in the liberal arts, professions, management, public policy, and the making of complex personal decisions

	Levels of Teaching	Methods of Teaching and Assessing	Examples of Assignments
Not Critical Thinking	**Answering Questions** Answering "what", "when", "where" "who" and "how" questions; giving definitions; listing, summarizing or desc'ibing information from the course; completing a forte on the job.	Go over the test and notes from your own lectures in class, asking aloud and getting answers to the question: "**What question is answered here?** The accuracy and types of questions asked in response is an indicator of comprehension.	Have students look at their notes or texts and generate their own question by asking themselves "To what question is this passage an answer?" Initially they will typically produce primarily informational questions.
Critical Thinkin g	Using information presented in the course, or data already available on the job, to appropriately answer questions posed regarding "Why" or questions that require analysis, synthesis, comparison, evaluation, or justification	When a student generates a "why" question, take particular note and get students discussing what questions are the most powerful and why. Explain the structure of analytical questions using familiar material (and visualizations. See following pages for some examples.)	In quizzes, use student-generated questions and pose analytical questions, explaining ahead of time how answers to such questions can be structured. (Requiring them to use visual analogues for each of the usual essay questions arc helpful. (See examples on back of next page)
	Asking Questions Obtaining and then analyzing, comparing evaluating, synthesizing information and ideas not presented in the course or already available on the job. Material from other classes can be used to let students experience the transferability of thinking skills.	Once students have become comfortable working with more powerful questions and answering them from material already available in the class similar questions can be posed that require finding additional material on one's own using techniques explained In class.	Use of structures (see next chart) will generate many questions that go beyond the material. Set-breaking exercises (see DeBono) brainstorming techniques and other "creative thinking" exercises can be combined with self-criticism techniques (See below) for specific assignments
	Questioning Answers Critically assessing the material in	Material presented in the text can be analyzed to determine which of the	Students may be asked to read criticisms of their text or readings that

the course, or material generated by oneself. (This should be taught partly to engender a healthy scepticism, but primarily as the parallel process to creativity: insight vs. verification, "right-brain" vs. "left-brain"; global vs. linear, intuition vs. analysis)	inquiry techniques (presented above) generated it. Instructor may criticize the text and may carefully go over the criticisms to point out relevant criteria. *Above all, the instructor must subject his own views to scrutiny and be willing to modify them publicly during a discussion.*	conflict with it. After criticism has been modeled and analyzed by the instructor, or generated in class discussions, students could attempt their own carefully argued criticism, based where possible upon their own experience. *This kind of learning is threatening and is best internalized in | a supportive class*
Questioning Questions Rethinking the frame of reference, the underlying assumptions in the material taught, with an emphasis on conceptual, normative, and theoretical analysis	Comparisons of divergent views or theoretical anomalies may be presented, then discussed, with the instructor actively posing questions that lead students to perceive that the differences in viewpoint stem from differences in terminology or even in the questions being answered. Instructor may model reformulating a problem and then explain that process.	To criticize ones own work or to have a frame of reference questioned or shifted is disturbing and is thus often resisted. Important but not intractable emotion-laden topics are best assigned initially until the realization of the universality of reinterpretation and redefinition begins lo dawn, when more threatening topics might be attempted. (In short, debating "abortion" is NOT the place to start)

Tasks Calling for Critical Thinking Skills

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Problem Solving

Primarily spatial, reasoning, and quantitative skills essential to the performing and other arts and to house holding, various occupations, technical fields, research and management.

Level to be Emphasized in Teaching	Methods of Teaching and Assessing	Examples of Assignments	
Solving Problems Posed Solving problems posed by others using a given formula or a step by step procedure (including word problems with procedure given)	Consider not using a textbook, at least initially, and having students take complete notes with full written explanations, diagrams and charts they draw themselves, and their own marginal comments.	Have students make up their own problems and solve them, or each others. Have them first read the problem sets in their texts to see what they understand or can guess-- then read the text to see if they are right!	*Not Critical Thinking*
Solving problems set by others by first formulating the problem more precisely and then selecting from among solutions of proven effectiveness (including puzzles and word problems other than above)	Have students set word problems or problem situations for you and model solving them, slowly talking out possible approaches, and thinking aloud about why you reject some approaches and pursue others.	Have students work in pairs and tank aloud their approach to solving problems, stopping each other when a step is skipped or wrong; have them use pictures and/or write out their thinking (see attached & Whimbey).	*Critical Thinking*
Posing Problems On the basis of experience and understanding of a given set of objectives, standards, etc., perceiving or anticipating problems (or potentials), defining and acting to solve the problem (or realize the potential) by known solutions, or by trial and error.	Analyses cases in class. Observe students solving problems or carrying out complex processes, in hands-on situations, and later have them analyze what they did and why. From these analyses, illustrate principles and draw out rules of thumb appropriate to the field.	Have them observe and evaluate situations, act, and analyze their own actions. Have them write up "Lessons learned" from experience (as some companies reward employees for doing).	
Posing New Solutions Generating new ideas,	Specifically explain and practice brainstorming	Require students to deal with situations	

approaches, solutions, or techniques; making new uses or new combinations of old ideas: risking solutions of unknown value.	and other "right-brained" or "creative thinking" techniques intended to help students break through a mind set. Encourage "meta-cognition", i.e. watching how one's own cognitive processes work and learning to work with them and to appreciate the wide diversity of effective styles of problem solving. Teach techniques for cooperative problem" solving.	novel enough that the solutions they are accustomed to using won't work reliably thus forcing joint efforts, risk-taking and persistence. Require them to explicitly try out techniques taught and to discuss, and possibly record, the processes they went through and to share such records with other students looking for ideas.
Redefining Problems Recognizing when the way the problem is posed is getting in the way of a solution, or is not the "real" problem. Redefining what counts as a solution or the very terms in which the problem is described.	Same as above. Also provide historical and other examples of cases where viewing the problems differently was the first step to solving them. Model formulating the "problem" in many different ways. When explaining different theories, show how each would view the same problem differently and what would be gained thereby.	Require students to take the same "problem" and define it in several different ways. perhaps in each of the ways suggested by different theories discussed in class. Reward risk; i.e. 'award students for redefining the problem even when they sometimes are less effective because of having tried to apply something new learned in class or to have done something more difficult

	Italy	*France*	***England***
Dates?			
Center(s)?			
Political Leaders?			
Key Events?			
Key Discoveries?			
Scientists/inventors?			
Writers?			
Artists?			
Art Works?			
Philosophers?			

If you were setting a question like this for yourself ahead of time while studying for your exam, you could make up the list of topics (left hand column) from your comments in the margins of your class notes and the sub-headings in your textbooks. Answers in the boxes could be page numbers or lecture dates. (Avoid questions that would have a simple yes or no in the boxes)

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